Minutes & Slides from Proton Driver RF Meeting – October 26, 2004

(G.W. Foster)

SUBJECT: SLAC Meeting, IQ Modulator Topologies, WG Phase Shifter Status

Attendees: Bob Kustom, Ding Sun, Milorad Popovic, Victor Yarba, Timergali Khabibouline, Ivan Gonin, Gennady Romanov, Giorgio Apolinari, Fernanda Garcia, Pierre Bauer, Bill Foster

AGENDA:

1) SLAC Meeting
2) IQ Modulator Topologies
3) Waveguide Phase Shifter Status Report

MINUTES

1) Al Moretti discussed the **SLAC Linear Collider meeting** which he attended. Several ideas involving various degrees of redesign of the RF system were being discussed. There was also some discussion of how the needs of the Proton Driver RF systems might or might not be met by the plans of the ILC collaboration.

2) **Alternative Topologies for the IQ modulators** were briefly discussed. This was instigated by a paper http://accelconf.web.cern.ch/accelconf/e04/PAPERS/TUPKF004.PDF which discusses the pros and cons of various topologies for IQ modulators for cavity resonance control.

3) **A Status Report on the 1300 MHz Waveguide Phase Shifter** was given by Timergali Khabiboulline. Their measurements show >160 degrees of phase shift at 1300 MHz over a region of bias where losses are <0.1 dB, with a shorted stub of reduced height waveguide with 6" long bricks on the sides. This loss is smaller than was assumed for the thermal analyses of the tuner, so if the loss holds true at higher power then the cooling should be easier than planned. See following slides.

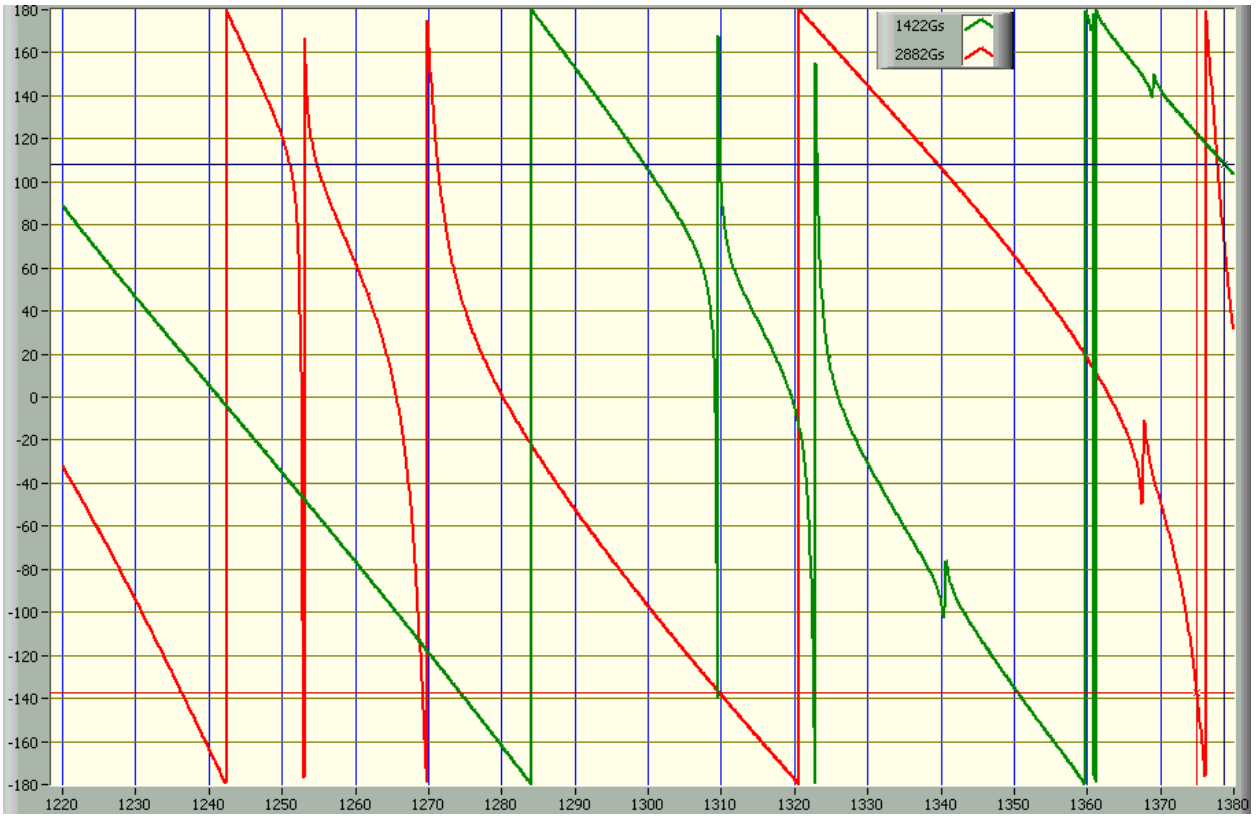
(1) What info is needed besides we have already to make a choice of the ferrite shape? G-550

(2) Is what we know about G-175 sufficient to predict PhSh behavior at high power?
(How low level measurem and modeling results compare?)

(3) Action plan:

1) ~~The~~ Test magnetic system
2) Put ferrite blocks in the w/g G-175
3) Use low level measurements to measure properties
4) Design high power test

Заворотка


1422Gs
2882Gs
180
160
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120
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0
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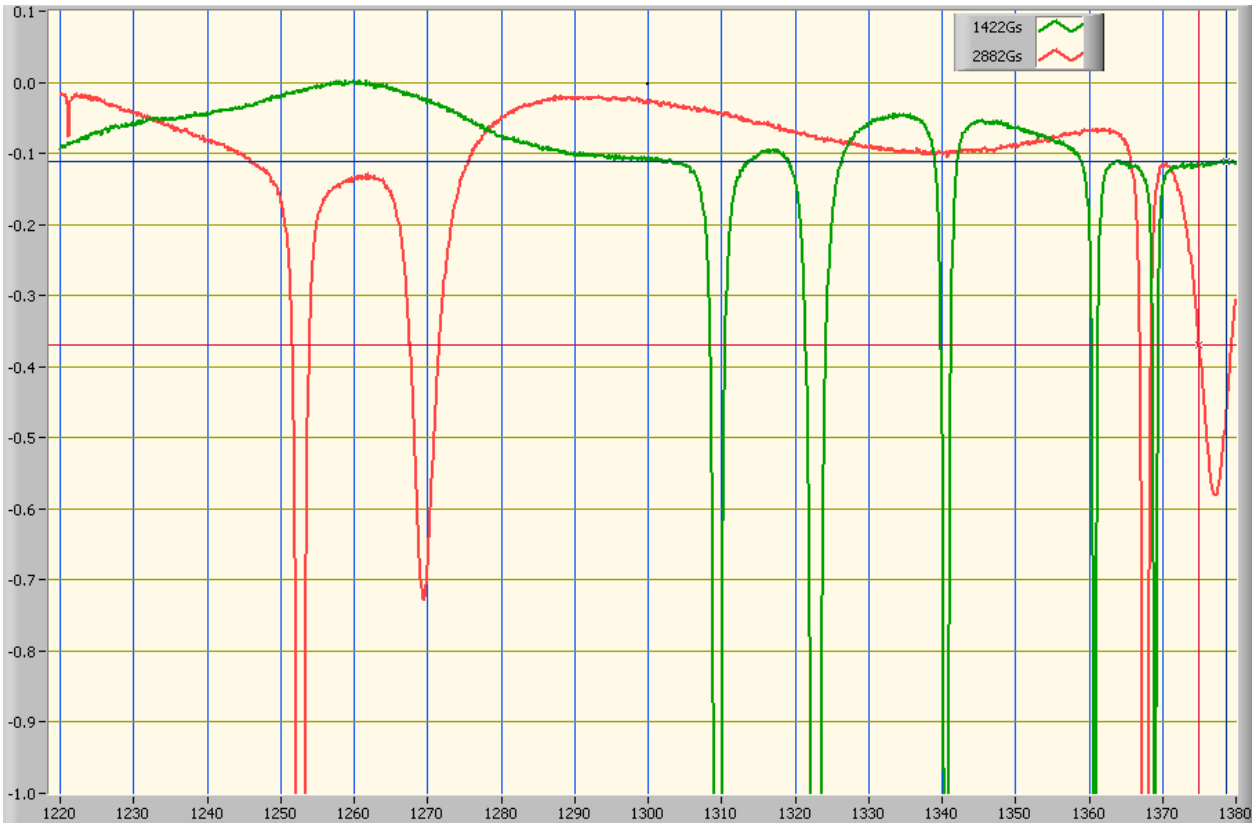
1422Gs
2882Gs
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-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
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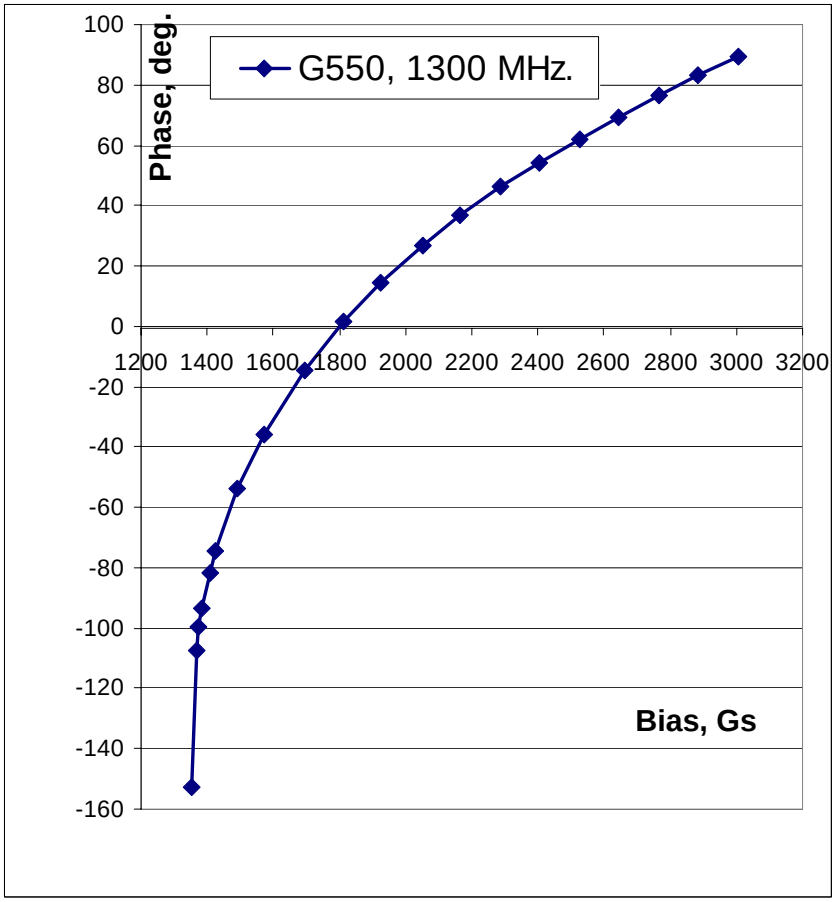
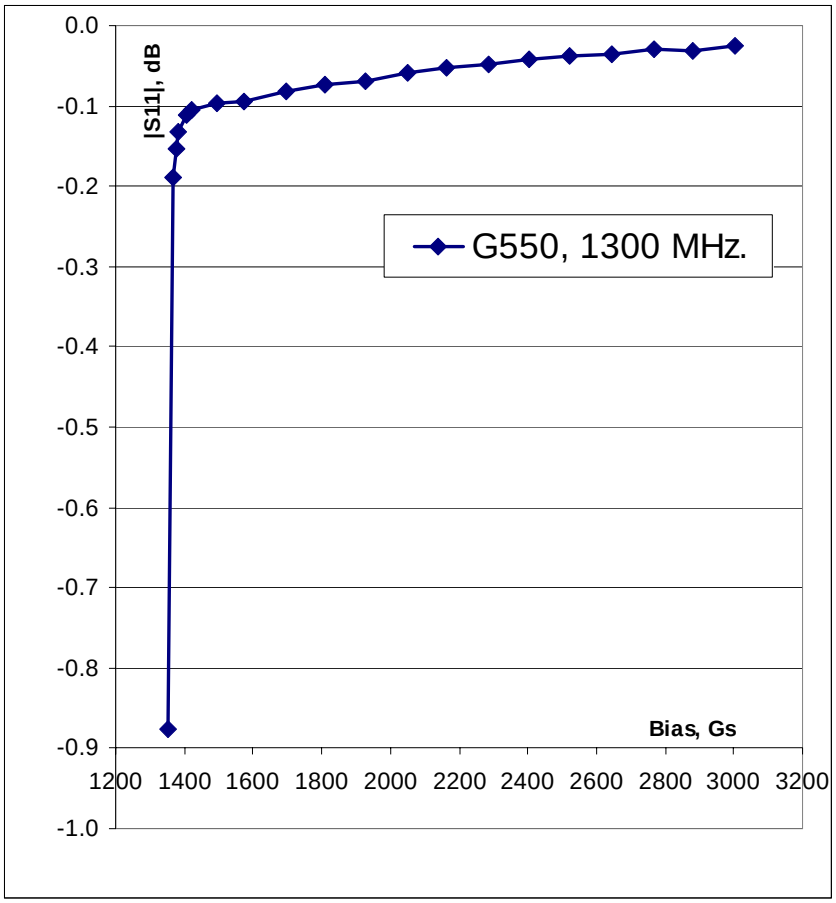


About 200 degree phase difference for bias range 1350-3000Gs.



Absorbtion <0.1dB
With phase shift ~160 degrees